

ADDITIONAL

PIONEER

015

# Service Manual

ORDER NO.  
ARP-475-0

FM/AM DIGITAL SYNTHESIZED TUNER

# TX-200Z

ZEZ,  
Z, ZS

Model	Power requirement	Destination
TX-200Z/ZEZ	DC 20V/250mA	West Germany
TX-200Z/Z	DC 20V/250mA	General export
TX-200Z/ZS	DC 20V/250mA	South Africa

The basic performance of the model TX-200Z/ZEZ, Z and ZS is the same as the model TX-950/KU. Please refer to the TX-950/KU service manual (ARP-472) with the exception of this service manual. This additional service manual is applicable to the TX-200Z/ZEZ, Z and ZS.

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# 1. SPECIFICATIONS

## FM Tuner Section

Frequency range	87.5MHz to 108MHz
Usable Sensitivity	10.8dBf, IHF (0.95μV/75Ω)
50dB Quieting Sensitivity	Mono; 17.2dBf, IHF (2μV/75Ω) Stereo; 38.2dBf, IHF (22.3μV/75Ω)
Sensitivity (DIN)	Mono; 0.8μV/75Ω Stereo; 28μV/75Ω
Signal-to-Noise Ratio	Mono; 80dB Stereo; 76dB
Signal-to-Noise Ratio (DIN)	Mono; 72dB Stereo; 65dB
Distortion	Stereo; 0.4% (1kHz)
Alternate Channel Selectivity	67dB (400kHz)
Stereo Separation	40dB (1kHz)
Frequency Response	30Hz to 15kHz±1dB
IF Response Ratio	118dB
Antenna Input	300Ω balanced 75Ω unbalanced

## AM Tuner Section

Frequency range	530kHz to 1600kHz when 10kHz step 531kHz to 1602kHz when 9kHz step
Sensitivity (IHF, Loop antenna)	200μV/m
Signal-to-Noise Ratio	52dB
Antenna	Loop Antenna

## Audio Section

Output (Level/Impedance)	
FM (100% MOD) FIXED	650mV/1.7kΩ
AM (30% MOD) FIXED	150mV/1.7kΩ

## Miscellaneous

Power Requirements	DC20V
Dimensions	420 (W) x 60 (H) x 219 (D)mm
Weight (without package)	2kg (4 lb 7 oz)

## Furnished Parts

FM T-type Antenna	1
AM Loop Antenna	1
Connection Cord with Pin Plugs	1
DC cord	1

# 2. CONTRAST OF MISCELLANEOUS PARTS

The TX-200Z/ZEZ, Z and ZS type are the same as the TX-950/KU type with the exception of the following sections.

Mark	Symbol & Description	Part No.			
		TX-950/KU type	TX200Z/ZEZ type	TX-200Z/Z type	TX-200Z/ZS type
⚠ ★★ FU601	Complex assembly	GWM-346	GWM-347	GWM-347	GWM-365
	LED assembly	non supply	non supply	non supply	non supply
	Switch assembly	AWS-163	...	...	...
	Fuse (0.8A/125V)	AEK-118	...	...	...
	Front panel assembly	ANM-602	ANM-568	ANM-568	ANM-568
	Knob cap	AAD-778	...	...	...
	Knob (POWER)	AAC-059	...	...	...
	Coild spring	ABH-134	...	...	...
	Connection cord	ADE-074	ADE-044	ADE-044	ADE-044
	DC power cord	...	ADE-076	ADE-076	ADE-076
⚠	Operation Instructions (English)	ARB-602	...	*RRB-235 or RRB-237	*RRB-235 or RRB-237
	Operation Instructions (German)	...	*RRD-068 or RRD-067	...	...
	Note sheet (English, French, German, Italian)	...	ARH-051	ARH-051	ARH-051
	Cabinet bumper	AEC-903	AEC-784	AEC-784	AEC-784
	Packing case	AHE-332	AHE-373	AHE-373	AHE-373
	AC Power cord	ADG-073	...	...	...
	Screw (3 x 6)	VMZ30P060FMC	...	...	...
	(Switch assembly)				

## \*NOTE:

Since the unit may be sold as a component in combination system including model DC-200Z/DC-201Z and PL-200Z/PL-201Z or DC-100Z/DC-101Z and PL-200Z/PL-201Z, the instruction manual covers those models in combined form. The manual is packaged with models DC-200Z/DC-201Z or DC-100Z/DC-101Z.

RRB-235, RRD-068 ..... DC-200Z/DC-201Z  
RRB-237, RRD-067 ..... DC-100Z/DC-101Z

### 3. FOR THE ZEZ AND Z TYPES

#### ELECTRICAL PARTS LIST

##### NOTES:

- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560Ω	$56 \times 10^1$	561 . . . . .	RD4PS	561 J
47kΩ	$47 \times 10^3$	473 . . . . .	RD4PS	473 J
0.5Ω	0R5 . . . . .		RN2H	0R5 K
1Ω	010 . . . . .		RS1P	010 K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	$562 \times 10^1$	5621 . . . . .	RN4SR	5621 F
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- The  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

- For your Parts Stock Control, the fast moving items are indicated with the marks  and .

 GENERALLY MOVES FASTER THAN 

This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

#### Miscellaneous Parts

Mark	Symbol & Description	Part No.
	Complex assembly	GWM-347

#### Complex Assembly (GWM-347)

#### SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC201	PA3001-A (HA11225)
	IC301	HA12016
	IC401	LA1247
	IC601	NJM78M13A
	IC701	TD6104P
	IC702	TC9157P
	IC703	TD6301AP
	Q101	2SK241-Y
	Q102	2SC2786-L
	Q103, Q201	2SC2668
	Q104, Q105	2SK161-Y
	Q301 – Q303, Q601, Q602, Q606, Q608, Q701, Q702, Q704 – Q707, Q801, Q802	2SC1740S (2SC2458) (2SC2603) (JC501)
	Q304, Q605, Q607, Q703	2SA933S (2SA1048) (2SA1115) (JA101)
	Q305, Q306	2SK246
	Q603	2SC2705(A)
	Q604	2SA1145(A)
	D101 – D103	1SV147
	D201, D202, D301, D403, D404, D701 – D709, D801, D802	1S1555 (US1035)
	D302, D606	S5566
	D401, D402	SUC321C2/D2-SP (SVC321C2/D2)
	D605	RD5.6EB (HZ5.6EB)

#### TRANSFORMERS, COILS AND FILTERS

Mark	Symbol & Description	Part No.
T101	FM RF transformer	ATC-194
T102	FM IF transformer	ATE-063
T201	FM DET transformer	ATE-052
T401	AM ANT transformer	ATB-099
L101	FM ANT coil	ATC-192
L102	FM ANT coil	ATC-193
L103	FM OSC coil	ATC-214
L104, L105, C201, L202,		ATH-049
	RF choke coil	
L401	AM OSC coil	ATB-100
F201	FM ceramic filter	ATF-119
F202	FM ceramic filter	ATF-107
F301	Beat eliminate filter	ATF-146
F401	AM ceramic filter	ATF-133

#### SWITCHES

Mark	Symbol & Description	Part No.
	S3 – S8, S11 – S13, S15, S16	ASG-711 (ASG-703)
	S17	ASH-034

## CAPACITORS

Mark	Symbol & Description	Part No.
TC401, TC402	Ceramic trimmer	ACM-015
C601	Electrolytic (2200/35)	ACH-367
C713	Electrolytic (22000/6)	ACH-243
C401		CCDCH 080D 50
C117		CCDCH 100D 50
C115, C404, C717		CCDCH 150J 50
C716		CCDCH 180J 50
C116		CCDCH 330J 50
C101, C102, C105, C106		CCDRH 390J 50
C108		CCDSL 020C 50
C424		CCDSL 030C 50
C109, C111, C112		CCDSL 050C 50
C110		CCDSL 101J 50
C205, C718		CCDSL 221J 50
C119		CCDTH 180J 50
C212		CCPCH 3R9K 50
C425		CCPSL 101J 50
C611		CEA R47M 50L
C207, C211, C306, C312, C313, C702, C709, C711, C712		CEA 010M 50L
C705		CEA 1R5M 50L
C303, C603, C604		CEA 221M 16L
C307, C308		CEA 3R3M 50L
C412, C419, C703		CEA 330M 16L
C301, C302, C414, C415, C613, C701		CEA 4R7M 50L
C213, C311, C607		CEA 470M 25L
C714		CEA 471M 6L
C309, C310, C410, C423		CKDYB 102K 50L
C314, C315		CKDYB 182K 50
C317, C318		CKDYB 561K 50
C316		CKDYB 681K 50
C104, C107, C113, C114, C118, C201, C202, C208, C210, C403, C409, C413, C418, C704, C706 – C708		CKDYF 103Z 50
C103, C203, C204, C209, C214, C402, C407, C408, C416, C417, C420, C422, C715, C719		CKDYF 223Z 50
C305, C411, C206, C602, C612, C710		CKDYF 473Z 50
C605, C606		CKDYX 473M 25
C304		CQSA 102J 50
C405		CQSA 431J 50
C421		CQMA 473J 50

## RESISTORS

*NOTE: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.*

Mark	Symbol & Description	Part No.
★	VR301 Semi-fixed	VRTB6V332
▲	R601	RS1LMF 151J
	R608	RS1LMF 680J
	R720, R721 Resistor array	ACN-142
	R734	RD1/4PMFL 4R7J
	R308, R310, R311, R402, R415, R602, R605, R702, R710, R724, R728 – R732, R802, R807	RD1/4PM □□□J
	Other resistors	RD1/8PM □□□J

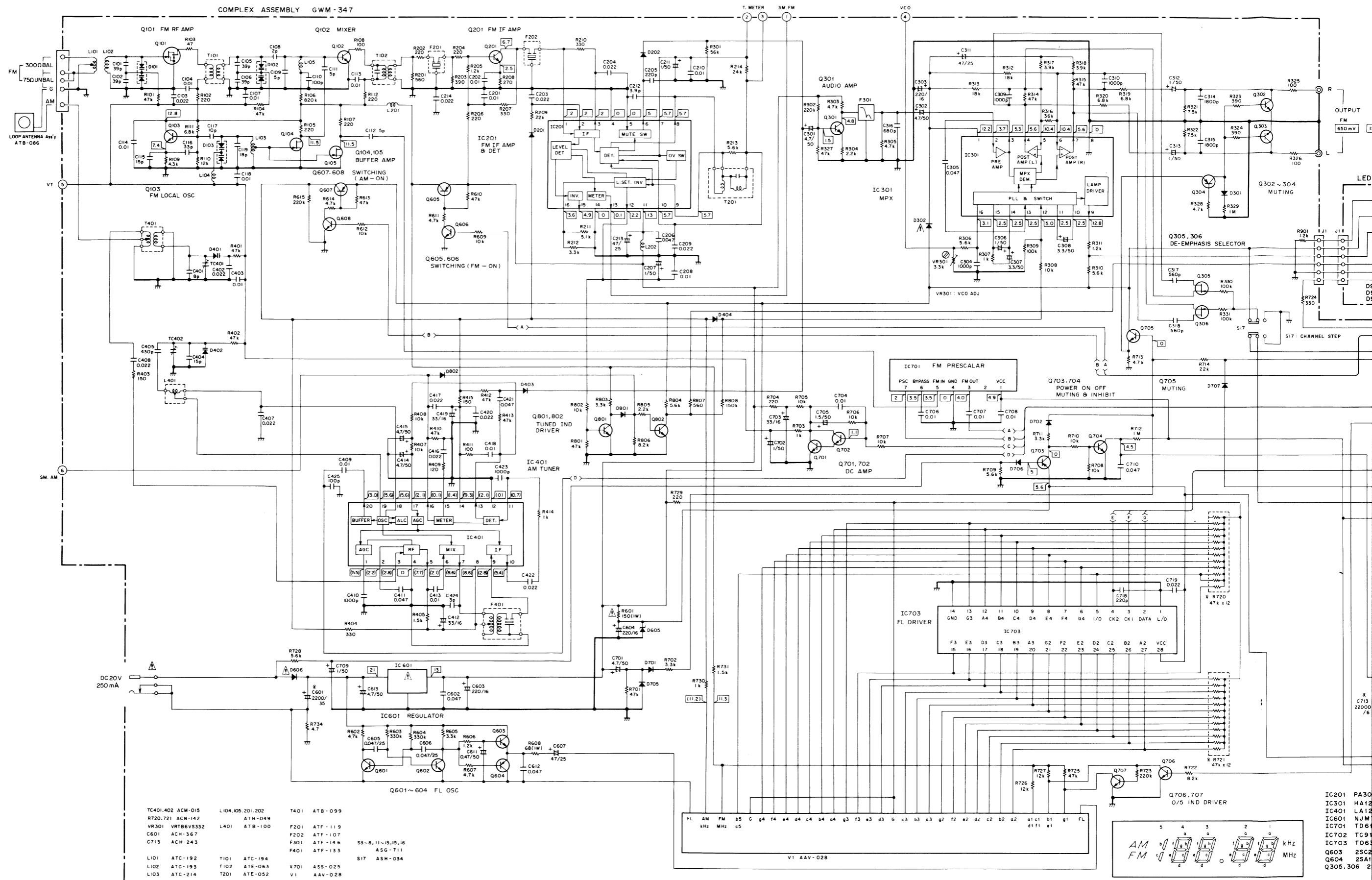
## OTHERS

Mark	Symbol & Description	Part No.
	Terminal (ANTENNA)	AKA-018
	Terminal (OUTPUT)	AKB-093
	Terminal (DC INPUT)	AKN-203
★ V1	Flourescent display tube	AAV-028
★ X701	Crystal resonator Screw (3 x 6)	ASS-025 PBZ30P060FMC

## LED Assembly

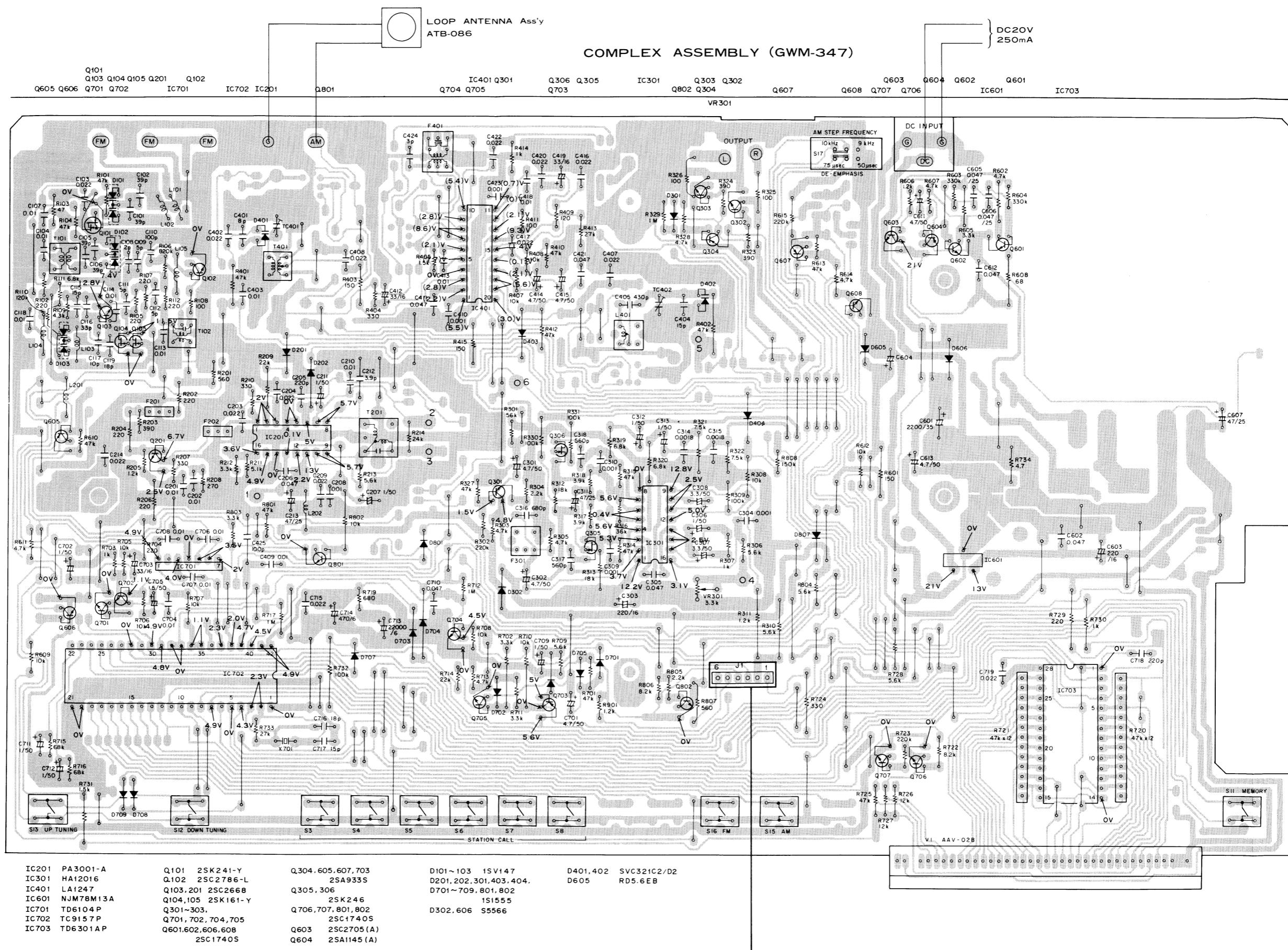
Mark	Symbol & Description	Part No.
★ D901, D903	LED (RED)	AEL-388
★ D902	LED (GREEN)	AEL-383
★ D904	LED (RED)	AEL-434

## SCHEMATIC DIAGRAM





## P.C. BOARDS CONNECTION DIAGRAM



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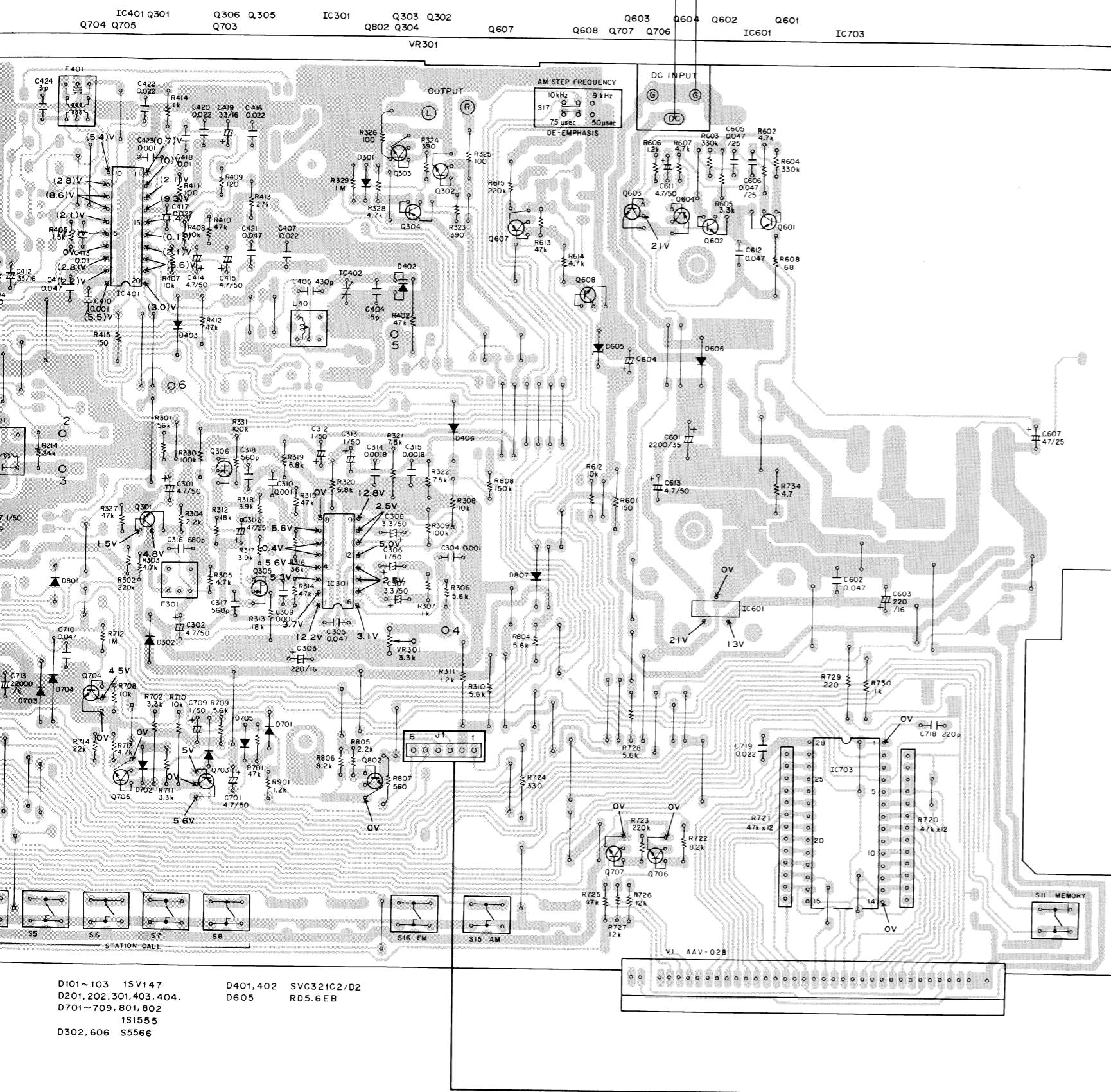
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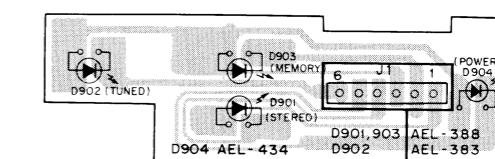
LOOP ANTENNA Ass'y  
ATB-086

## COMPLEX ASSEMBLY (GWM-347)



D101~103	1SV147	D401,402	SVC321C2/D2
D201,202,301,403,404,		D605	RD5.6EB
D701~709,801,802			
	1S1555		
D302,606	S5566		

## LED ASSEMBLY



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## 4. FOR THE ZS TYPE

### ELECTRICAL PARTS LIST

#### NOTES:

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Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560Ω	56 × 10 <sup>1</sup>	561 . . . . .	RD%PS	561 J
47kΩ	47 × 10 <sup>3</sup>	473 . . . . .	RD%PS	473 J
0.5Ω	0R5 . . . . .		RN2H	0R5 K
1Ω	010 . . . . .		RS1P	010 K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	562 × 10 <sup>1</sup>	5621 . . . . .	RN%SR	5621 F
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- The A mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

- For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.

★★ GENERALLY MOVES FASTER THAN ★

This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc:

#### Miscellaneous Parts

Mark	Symbol & Description	Part No.
	Complex assembly	GWM-365

#### Complex Assembly (GWM-365)

#### SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC201	PA3001-A (HA11225)
★★	IC301	HA12016
★★	IC401	LA1247
★★	IC601	NJM78M13A
★★	IC701	TD6104P
★★	IC702	TC9157P
★★	IC703	TD6301AP
★★	Q101	2SK241-Y
★★	Q102	2SC2786-L
★★	Q103, Q201	2SC2668
★★	Q104, Q105	2SK161-Y
★★	Q301 – Q303, Q601, Q602, Q606, Q608	2SC1740S (2SC2458)
★★	Q701, Q702, Q704 – Q707, Q801, Q802	(2SC2603) (JC501)
★★	Q304, Q605, Q607, Q703	2SA933S (2SA1048) (2SA1115) (JA101)
★★	Q603	2SC2705(A)
★★	Q604	2SA1145(A)

Mark	Symbol & Description	Part No.
★	D101 – D103	1SV147
★	D201, D202, D301, D403, D404, D701 – D709, D801, D802	1S1555 (US1035)
A	★ D302, D606	S5566
	★ D401, D402	SUC321C2/D2-SP (SVC321C2/D2)
	★ D605	RD5.6EB (HZ5.6EB)

#### TRANSFORMERS, COILS AND FILTERS

Mark	Symbol & Description	Part No.
T101	FM RF transformer	ATC-194
T102	FM IF transformer	ATE-063
T201	FM DET transformer	ATE-052
T401	AM ANT transformer	ATB-099
L101	FM ANT coil	ATC-192
L102	FM ANT coil	ATC-193
L103	FM OSC coil	ATC-215
L104, L105, L201, L202	RF choke coil	ATH-049
L401	AM OSC coil	ATB-100
F201	FM ceramic filter	ATF-119
F202	FM ceramic filter	ATF-107
F301	Beat eliminate filter	ATF-146
F401	AM ceramic filter	ATF-133

#### SWITCHES

Mark	Symbol & Description	Part No.
	S3 – S8, S11 – S13, S15, S16 Tact switch	ASG-711 (ASG-703)

## CAPACITORS

Mark	Symbol & Description	Part No.
TC401, TC402	Ceramic trimmer	ACM-015
C601	Electronic (2200/35)	ACH-367
C713	Electronic (22000/6)	ACH-243
C401		CCDCH 080D 50
C117		CCDCH 080D 50
C115, C404, C717		CCDCH 150J 50
C716		CCDCH 180J 50
C116		CCDCH 330J 50
C101, C102, C105, C106		CCDRH 390J 50
C108		CCDSL 020C 50
C424		CCDSL 030C 50
C109, C111, C112		CCDSL 050C 50
C110		CCDSL 101J 50
C205, C718		CCDSL 221J 50
C119		CCDTH 120J 50
C212		CCPCH 3R9K 50
C425		CCPSL 101J 50
C611		CEA R47M 50L
C207, C211, C306, C312, C313, C702, C709, C711, C712		CEA 010M 50L
C705		CEA 1R5M 50L
C303, C603, C604		CEA 221M 16L
C307, C308		CEA 3R3M 50L
C412, C419, C703		CEA 330M 16L
C301, C302, C414, C415, C613,		CEA 4R7M 50L
C701		
C213, C311, C607		CEA 470M 25L
C714		CEA 471M 6L
C309, C310, C410, C423		CKDYB 102K 50
C314, C315		CKDYB 182K 50
C316		CKDYB 681K 50
C104, C107, C113, C114, C118, C201, CKDYF 103Z 50		
C202, C208, C210, C403, C409, C413, C418, C704, C706 – C708		
C103, C203, C204, C209, C214, C402, CKDYF 223Z 50		
C407, C408, C416, C417, C420, C422, C715, C719		
C206, C305, C411, C602, C612, C710	CKDYF 473Z 50	
C605, C606	CKDYX 473M 25	
C421	CQMA 473J 50	
C304	CQSA 102J 50	
C405	CQSA 431J 50	

## RESISTORS

*NOTE: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.*

Mark	Symbol & Description	Part No.
★ VR301	Semi-fixed	VRTB6VS332
R720, R721	Resistor array	ACN-142
▲ R601		RS1LMF 151J
R608		RS1LMF 680J
R734		RD1/4PMFL 4R7J
R308, R310, R311, R402, R415, R602, R605, R702, R710, R724, R728 – R732, R802, R807		RD1/4PM □□□J
Other resistors		RD1/8PM □□□J

## OTHERS

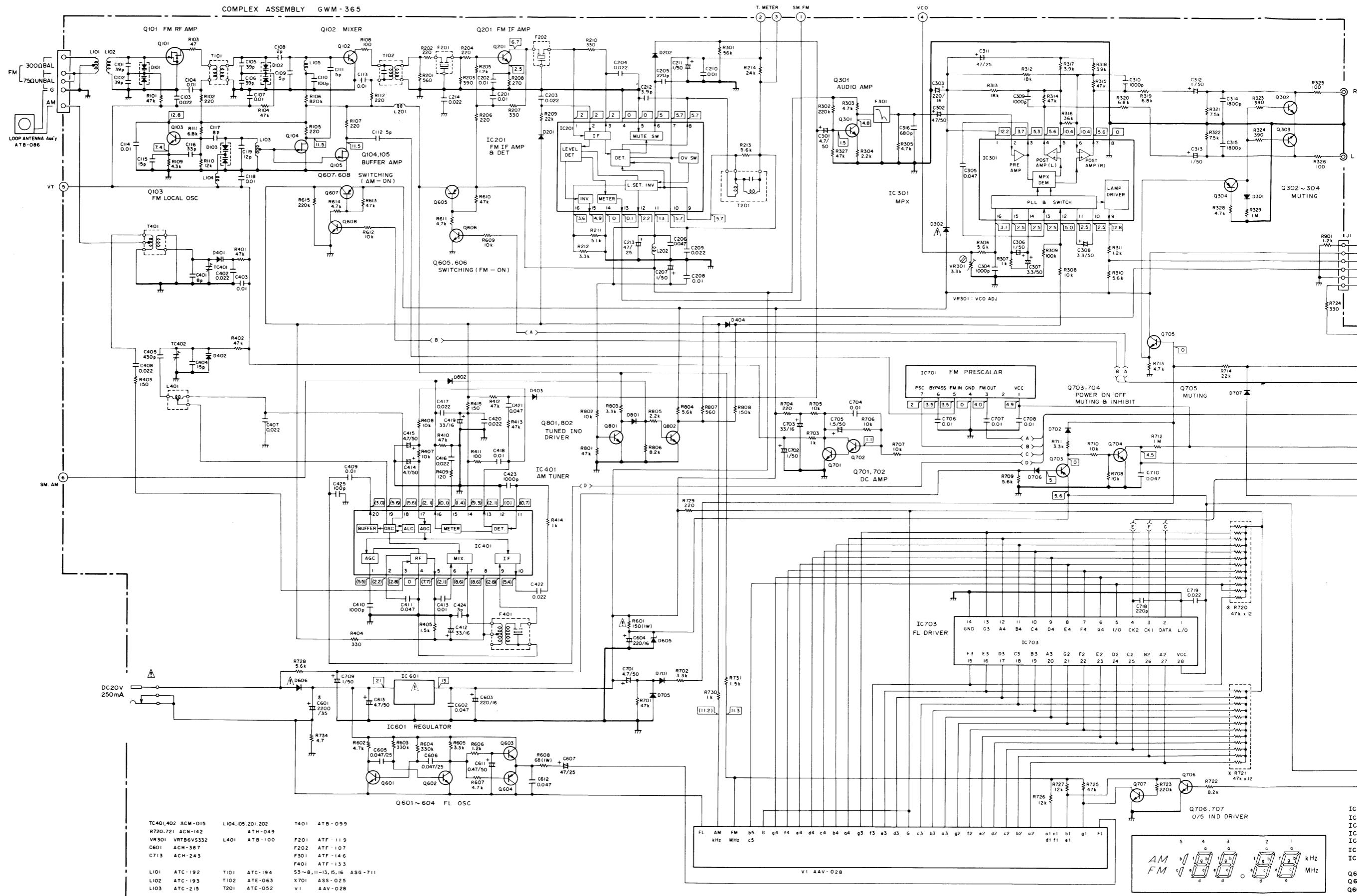
Mark	Symbol & Description	Part No.
	Terminal (ANTENNA)	AKA-018
	Terminal (OUTPUT)	AKB-093
	Terminal (DC INPUT)	AKN-203
★ V1	Flourescent display tube	AAV-028
★ X701	Crystal resonator	ASS-025
	Screw (3 x 6)	PBZ30P060FMC

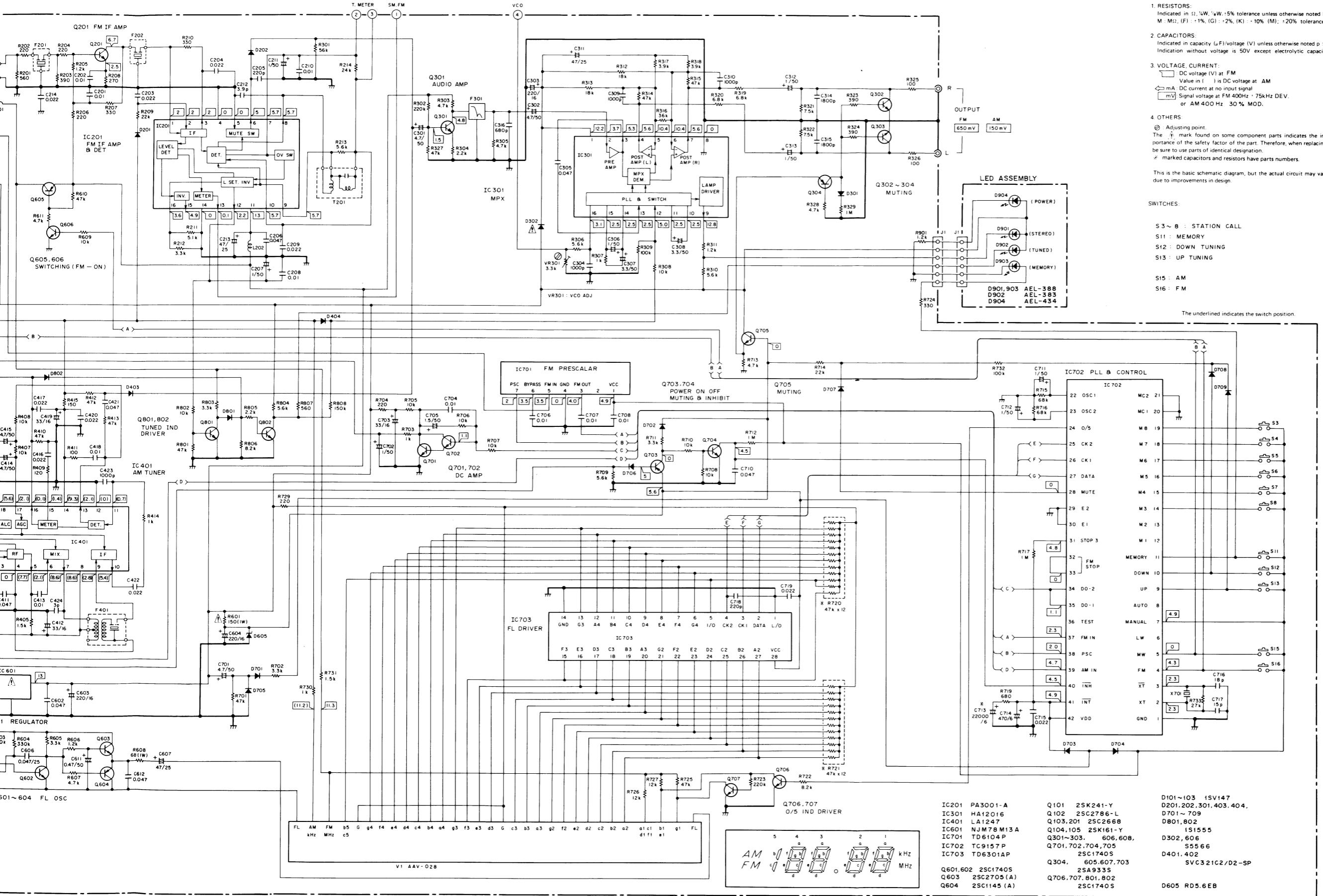
## LED Assembly

## SEMICONDUCTORS

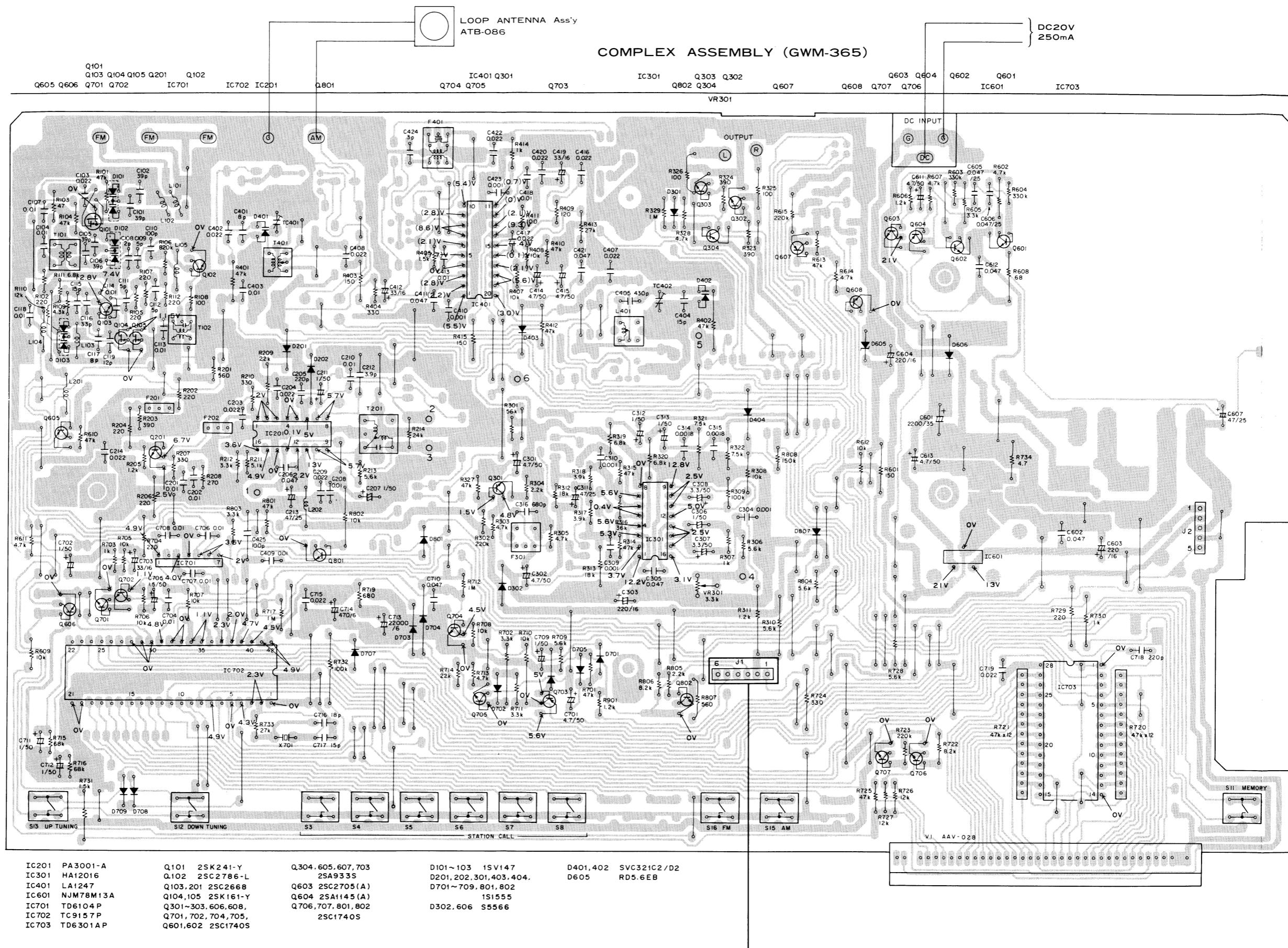
Mark	Symbol & Description	Part No.
★ D901, D903	LED (RED)	AEL-388
★ D902	LED (GREEN)	AEL-383
★ D904	LED (RED)	AEL-434

## SCHEMATIC DIAGRAM





## P.C. BOARDS CONNECTION DIAGRAM



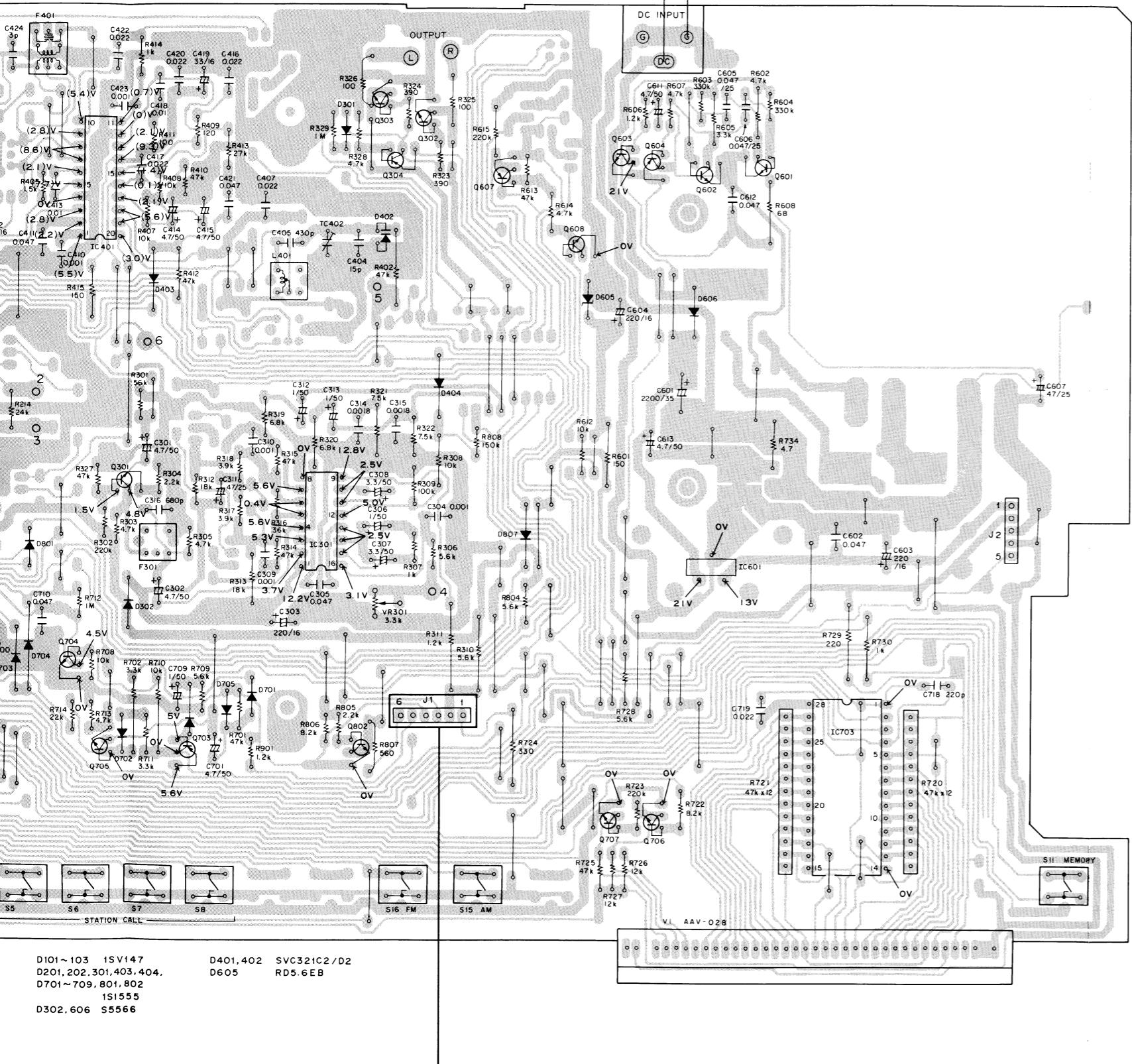


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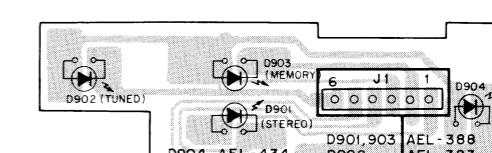
## COMPLEX ASSEMBLY (GWM-365)

IC401 Q301 IC301 Q303 Q302 Q603 Q604 Q602 Q601 IC601 IC703

VR301



#### LED ASSEMBLY



D010~103	1S1V147	D401,402	SVC321C2/D2
D201,202,301,403,404,		D605	RD5.6EB
D701~709,801,802			
	1S1555		
D302,606	S5566		